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09/991,600	11/23/2001	Kazuhiko Hayashi	15113	7594

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EXAMINER

CARIASO, ALAN B

ART UNIT PAPER NUMBER

2875

DATE MAILED: 10/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/991,600

Applicant(s)

HAYASHI ET AL.

Examin r

Alan Cariaso

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-80 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7, 10-12, 17-21, 23-36, 39, 42-45, 47-68, 70, 71, 73-76 and 78-80 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 8, 9, 13-16, 22, 37, 38, 40, 41, 46, 69, 72 and 77 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claims 1-80 are objected to because of the following informalities: The term "electroluminescence" which is a noun is used to describe the "device", which is inappropriate. Instead it should be replaced with the adjective --electroluminescent--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claims 1, 2, 4, 7, 10, 17-21, 59, 62, 66 and 67 are rejected under 35 U.S.C. 102(b) as being anticipated by reference 10-50124.
5. Reference 10-50124 discloses an electroluminescent device (19) integral with substrate (11) formed on an end surface (41, fig.4a) of optical conductor (40); wherein a

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face of the EL device (11,19) is the form of a line in a length-wise direction (fig.1a or 2b) of the end surface (18,fig.5) of the optical conductor (15,fig.5); wherein the EL device (11,19 or 30) is comprised of plurality of electroluminescent device groups including a plurality of sub-devices emitting lights (32R,32G,32B) having different wavelengths from one another; wherein the EL device (30) emits a light having a mixture color of red (32R), green (32G) and blue (32B); wherein the EL device emits light by inherently applying a current to a thin organic film (13); wherein the optical conductor (20,fig.2a) is formed with a sawtooth-shaped portion (23) defined by surfaces extending in parallel and perpendicular with a first surface (21) through which a light emitted from the EL device passes outwardly (fig.2a); further comprising a light permeable expansion (11 or 31) formed on the end surface (41,fig.4a) of the optical conductor, the EL device (19) being formed on the expansion (11) such that a dispersion angle of light emitted from EL device is reduced (compare fig.4a with fig.4b); an LCD device comprising a liquid crystal layer (51,fig.5) sandwiched between first and second substrates (52,52,fig.5) a lighting device (10,15) emitting light through the first substrate (52), the LC layer (51) and the second substrate (52), the lighting device including the optical conductor (15) and EL device (10,19); wherein the EL device comprises a first red-emitting sub-device (32R), a second green-emitting sub-device (32G) and a third blue-emitting sub-device (32B) which inherently are presented synchronized with corresponding R-G-B images displayed by LCD device; given the structure, a method of forming the EL device (10,19) with the light-permeable expansion (11) on the end surface (18-fig.5,41-fig.4a) of the optical conductor (15 or 40).

6. Claims 1, 2, 4, 24, 25, 33, 34, 36, 39, 42, 66 and 75 are rejected under 35 U.S.C. 102(b) as being anticipated by BLONDER et al (US 6,036,327).

7. BLONDER discloses an lighting device comprising an electroluminescent device (210; col.4, lines 40-46) being formed on an end surface (250) of an optical conductor (220); wherein a face of the EL device is the form of a line in a length-wise direction of the end surface (250,fig.2) of the optical conductor (220); wherein the EL device (210) is comprised of plurality of electroluminescent device groups including a plurality of sub-devices emitting lights having different wavelengths from one another (multicolor LEDs, col.4, line 44); wherein the EL device being at least partially embedded in the optical conductor (col. 5, lines 12-15), the EL inherently constituting at least one of plural layers embedded therein; given the structure, a method of forming the electroluminescent device (210) on an end surface of the optical conductor and embedded therein.

8. Claims 1, 10, 24, 25, 33, 42, 66 and 71 are rejected under 35 U.S.C. 102(b) as being anticipated by TOKUNAGA (US 5,375,043).

9. TOKUNAGA discloses an lighting device comprising an electroluminescent device (LEDs 2a-d) being formed on an end surface (1c) of an optical conductor (1); wherein the EL device (2a-d) emits light having mixture color of red, green and blue (col.2, lines 51-64); wherein the optical conductor (1) is formed at the end surface (1c) thereof with an arcuate recess (1b,fig.2) in which the EL device (2) is formed; wherein the EL device (2) is at least partially embedded in the optical conductor (1,fig.2); given

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the structure, a method of forming the electroluminescent device (2) on an end surface (1c-fgi.2) of the optical conductor (1) and embedded in a recess (1b) introducing light toward an LCD (3).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 3, 28, 29, 32, 68 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over reference 10-50124 in view of SCHONIGER et al (US 5,027,258).

12. In regards to claim 3, reference 10-50124 discloses applicant's invention including a reflective electrode film (14) adjacent the end surface of the optical conductor. However, reference 10-50124 does not disclose the reflector covering the end surface of the optical conductor. SCHONIGER '258 teaches a reflector (16) covering the end surface (fig.1) of the optical conductor (10) for the purpose of preventing light from the LED or EL device (15) from leaking out of the end surface of the optical conductor (col.2, lines 20-24). It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the lighting device of reference 10-50124 to include the type of reflector covering the end surface of the optical conductor and EL device as taught by SCHONIGER et al '258 in order to prevent leakage of light being directed to the display.

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13. In regards to claims 28, 29 and 32, reference 10-50124 discloses applicant's invention except a resin or sealing cap entirely covering and hermetically sealing the EL device. SCHONIGER '258 teaches the use of resin (12, col.4, lines 10-13) and or a sealing resin cap (23-fig.5, col.6, lines 31-32) for the purpose of positioning, enclosing and protecting the luminescent diodes (15) from the surroundings. It would be inherent to for the resin enclosure to function as deoxidization or dehydration. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the lighting device of reference 10-50124 to include the type of resin enclosure as taught by SCHONIGER et al '258 in order to protectively enclose the LEDs or EL device.

14. In regards to claims 68 and 70, reference 10-50124 discloses applicant's invention except the expansion being formed by injection molding or ink-jet injection. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to form the expansion on the optical conductor to include the methods of injection molding or ink-jet injection since it is known in the art to make optical appendages to optical guides by these known methods.

15. Claims 11, 12 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over reference 10-50124 in view of CODAMA et al (US 6,121,726).

16. In regards to claims 11 and 12, reference 10-50124 discloses applicant's invention including a plurality of EL device groups and sub-devices (fig.1) emitting light having different wavelengths. However, reference 10-50124 does not disclose the

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transparent electrode layer, the hole-injecting layer, light-emitting layer, the electron-transporting layer, and the metal electrode layer stacked in this order defining the electroluminescent device as viewing from the optical conductor, and the expansion having an index of refraction greater than indices of refraction of the hole-injection layer, the light-emitting layer and the electron-transporting layer.

17. CODAMA teaches an organic electroluminescent device (3) that has a multi-layered structure (fig.2; col.4, lines 4-11) including a transparent electrode layer (22), a hole-injecting layer (23), a light-emitting layer (25), an electron-transporting layer (26), and an metal electrode layer (27) stacked in this order (fig.2) for the purpose of defining an operative electroluminescent device that illuminates. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the electroluminescent device of reference 10-50124 to include the multi-layered structure as taught by CODAMA et al in order to define an operative electroluminescent device that illuminates.

18. In regards to claim 23, this recites the expansion having a greater index of refraction than indices of refraction of the hole-injecting layer, the light emitting layer and the electron-transporting layer. It would have been to one of ordinary skill in the art at the time of applicant's invention to provide the expansion material (11,31) with the EL device (19) of reference 10-50124 including the magnitude order of indices of refraction being greater to lower in the order of the expansion to the layers of the EL device since it was known in the art that EL layers along with any connected or associated optical device are materials that have indices of refraction which would reduce divergence or

loss of light relative to a one direction of illumination known of light sources end-coupled to optical conductors.

19. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over reference 10-50124 in view of TIAO et al (US 6,254,246).

20. Reference 10-50124 discloses applicant's invention except the optical conductor being tapered at least one of upper and lower surfaces adjacent the end surface. TIAO teaches the use of a tapered optical conductor (310-fig.4) that include tapering of at least one of the main surfaces (312,314) adjacent the end surface (312) associated with the electroluminescent light sources (LEDs or EL; col.3, lines 7-11) for the purpose of internally reflecting incident light within the optical conductor (col.4, lines 47-61) reducing light loss from illuminating the display. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the lighting device of reference 10-50124 to include the type of tapered optical conductor as taught by TIAO et al in order to internally reflect incident light from the EL light source reducing light loss of incident light that would illuminate the display.

21. Claims 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over reference 10-50124 in view of INHOHARA et al (US 4,357,557).

22. Reference 10-50124 discloses applicant's invention except a deoxidizer and a dehydrator sandwiched between a resin or sealing cap and the EL device. INOHARA teaches a deoxidizer (13) and dehydrator (16) sandwiched between the resin or sealing

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cap (11,12) and the EL device (3-6) for the purpose of removing of or sealing from gases and moisture around the EL device. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the EL lighting device of reference 10-50124 to include the deoxidizer, dehydrator, and sealing device as taught by INHOHARA et al in order to protect the EL device from moisture and gases.

23. Claims 35 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over TOKUNAGA (US 5,375,043) in view of SCHONIGER et al (US 4,903,172).

24. TOKUNAGA discloses applicant's invention except a reflector covering the end surface of the optical conductor. SCHONIGER '172 teaches a reflector (12) covering the end surface of the light conductor (10) adjacent the embedded luminescent light source (11) for the purpose of preventing light leakage that would otherwise illuminate the adjacent display. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the lighting device of TOKUNAGA to include the type of reflector with a method of forming the reflector at the end surface of the optical conductor as taught by SCHONIGER et al '172 in order to prevent light leakage.

25. Claims 43-45 and 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over BLONDER et al (US 6,036,327) in view of CODAMA et al (US 6,121,726).

26. BLONDER discloses applicant's invention except the transparent electrode layer, the hole-injecting layer, light-emitting layer, the electron-transporting layer, and the metal electrode layer stacked in this order defining the electroluminescent device as viewed from the optical conductor and a single layer having the functions of the light-emitting layer and electron-transporting layer.

27. CODAMA teaches an organic electroluminescent device (3) that has a multi-layered structure (fig.2; col.4, lines 4-11) including a transparent electrode layer (22), a hole-injecting layer (23), a light-emitting layer (25), an electron-transporting layer (26), and an metal electrode layer (27) stacked in this order (fig.2) for the purpose of defining an operative electroluminescent device that illuminates. CODAMA further teaches the light emitting layer as a single layer that functions as a light emitting layer and electron-transporting layer (col.5, lines 61-65). It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the electroluminescent device of BLONDER et al to include the multi-layered structure as taught by CODAMA et al in order to define an operative electroluminescent device that illuminates.

28. Claims 50, 51, 63 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over BLONDER et al (US 6,036,327) in view of reference 10-50124.

29. In regards to claims 50 and 51, BLONDER discloses applicant's invention except the sawtooth-shaped portion at a light emitting or first surface defined by surfaces extending in parallel with the first surface and surfaces extending perpendicularly to the

first surface. Reference 10-50124 teaches a sawtooth-shaped first or light emitting surface (23) as claimed for the purpose of extracting light from the optical conductor (20) toward the LCD. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the lighting device of BLONDER et al to include the type of sawtooth shaped surface of the optical conductor as taught by reference 10-50124 in order to direct light from the optical conductor to the LCD.

30. In regards to claims 63 and 65, BLONDER discloses applicant's invention except first and second substrates sandwiching a liquid crystal layer to define the LCD.

Reference 10-50124 teaches a multi-layer LCD that includes first and second substrates (52,53) sandwiching an LC layer (51) for the purpose of defining a liquid crystal device. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify LCD lighting device of BLONDER to include the type of multi-layer LCD structure as taught by reference 10-50124 in order to defining an operative LCD.

31. Claims 52, 53 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over BLONDER et al (US 6,036,327) in view of TIAO et al (US 6,254,246).

32. BLONDER discloses applicant's invention except the optical conductor being tapered at least one of upper and lower surfaces adjacent the end surface. TIAO teaches the use of a tapered optical conductor (310-fig.4) that include tapering of at least one of the main surfaces (312,314) adjacent the end surface (312) associated with the electroluminescent light sources (LEDs or EL; col.3, lines 7-11) for the purpose of

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internally reflecting incident light within the optical conductor (col.4, lines 47-61) reducing light loss from illuminating the display. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the lighting device of BLONDER et al to include the type of tapered optical conductor as taught by TIAO et al in order to internally reflect incident light from the EL light source reducing light loss of incident light that would illuminate the display.

33. Claims 54-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over BLONDER et al (US 6,036,327) in view of INHOHARA et al (US 4,357,557).

34. BLONDER discloses applicant's invention except a deoxidizer and a dehydrator sandwiched between a resin or sealing cap and the EL device. INOHARA teaches a deoxidizer (13) and dehydrator (16) sandwiched between the resin or sealing cap (11,12) and the EL device (3-6) for the purpose of removing of or sealing from gases and moisture around the EL device. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the EL lighting device of BLONDER et al to include the deoxidizer, dehydrator, and sealing device as taught by INHOHARA et al in order to protect the EL device from moisture and gases.

35. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over reference 10-50124 in view of MAEDA et al (US 6,285,422).

36. Reference 10-50124 discloses applicant's invention except a half-mirror located between the first substrate and the optical conductor. MAEDA teaches a half-mirror

(220-fig.22; col. 30, lines 58-60) between a substrate (16) associated with an LCD (10-fig.1) and optical conductor of a lighting device (17-figs.1 & 22) for the purpose of reflecting ambient light to make the LCD visible to the viewer. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the LCD-lighting device of reference 10-50124 to include the type of half mirror as taught by MAEDA et al in order to make the LCD device visible from ambient light.

37. Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over reference 10-50124 in view of TAI et al (US 5,608,837).

38. Reference 10-50124 discloses applicant's invention except a brightness detector and controller. TAI teaches a brightness sensor (63) and controller (65) for the purpose of sensing ambient light and controlling the dimming or activation of internal lights (18,48-figs.1-3) according to the ambient light sensed. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the LCD-lighting device of reference 10-50124 to include a brightness sensor and controller as taught by TAI et al in order to control the amount of internal lighting of the LCD according to the ambient light sensed.

39. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over BLONDER et al (US 6,036,327) in view of reference 10-50124 as applied to claims 63 and 65 above, and further in view of TAI et al (US 5,608,837).

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40. BLONDER modified by reference 10-50124 discloses applicant's invention except a brightness detector and controller. TAI teaches a brightness sensor (63) and controller (65) for the purpose of sensing ambient light and controlling the dimming or activation of internal lights (18,48-figs.1-3) according to the ambient light sensed. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the LCD-lighting device of BLONDER et al to include a brightness sensor and controller as taught by TAI et al in order to control the amount of internal lighting of the LCD according to the ambient light sensed.

41. Claims 75 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over TOKUNAGA (US 5,375,043) in view of JONES et al (US 6,198,220).

42. TOKUNAGA discloses the lighting device that includes an EL device (2) embedded or formed in a recess (1b) at an end surface (1c) of an optical conductor. However, TOKUNAGA does not disclose the EL device with at least one layer among layers. JONES teaches plural layers (fig.1) that constitute an EL or LED device (100) for the purpose of defining an operative illuminating device. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the LCD lighting device of TOKUNAGA to include the multi-layer structure of the EL device as taught by JONES et al in order to define an operative EL device.

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43. Claim 78 is rejected under 35 U.S.C. 103(a) as being unpatentable over TOKUNAGA (US 5,375,043) in view of JONES et al (US 6,198,220) as applied to claims 75 and 76 above, and further in view of SCHONIGER et al (US 4,903,172).

44. TOKUNAGA modified by JONES above discloses applicant's invention except a reflector covering the end surface of the optical conductor. SCHONIGER '172 teaches a reflector (12) covering the end surface of the light conductor (10) adjacent the embedded luminescent light source (11) for the purpose of preventing light leakage that would otherwise illuminate the adjacent display. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the lighting device of TOKUNAGA to include the type of reflector with a method of forming the reflector at the end surface of the optical conductor as taught by SCHONIGER et al '172 in order to prevent light leakage.

45. Claim 79 is rejected under 35 U.S.C. 103(a) as being unpatentable over TOKUNAGA (US 5,375,043) in view of JONES et al (US 6,198,220) as applied to claims 75 and 76 above, and further in view of TIAO et al (US 6,254,246).

46. TOKUNAGA modified by JONES above discloses applicant's invention except the optical conductor being tapered at least one of upper and lower surfaces adjacent the end surface. TIAO teaches the use of a tapered optical conductor (310-fig.4) that include tapering of at least one of the main surfaces (312,314) adjacent the end surface (312) associated with the electroluminescent light sources (LEDs or EL; col.3, lines 7-11) for the purpose of internally reflecting incident light within the optical conductor

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(col.4, lines 47-61) reducing light loss from illuminating the display. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the lighting device of TOKUNAGA to include the type of tapered optical conductor as taught by TIAO et al in order to internally reflect incident light from the EL light source reducing light loss of incident light that would illuminate the display.

47. Claim 80 is rejected under 35 U.S.C. 103(a) as being unpatentable over YAMADA et al (US 5,704,703) in view of KUSAFUKA et al (US 6,250,767).

48. YAMADA discloses a plurality of optical conductors (72,72') stacked on one another (figs.15-17) and defining separate pieces of the optical conductors to illuminate an LCD (col.3,lines 44-46; col.1,lines 24-33). However, YAMADA does not disclose EL devices on the end surface of the light conductor(s).

49. KUSAFUKA teaches the equivalence of an electroluminescent source or LED (3) and a fluorescent tube (col.5,lines 60-63) as surface light sources mounted on an end surface of the optical conductor (1) for the purpose of illuminating an LCD (9). It would have been obvious to modify the LCD lighting device of YAMADA et al to include the type of surface mounted EL or LED device on the optical conductor as taught by KUSAFUKA et al in order to illuminate an LCD.

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50. Claims 5, 6, 8, 9, 13-16, 22, 37, 38, 40, 41, 46, 69, 72, 77 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


51. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. HARDESTY (US 3,262,224) shows a light permeable expansion (91;fig.3) adjacent an end surface of a light conductor display (92) and an EL (100;fig.3) formed on the expansion. BOURNAY, JR et al (US 4,573,766), BOTTORF (US 5,267,062) and PARKYN, JR et al (US 5,806,955) show other optical conductors with at least one EL or LED device(s) surface mounted to an end surface of the optical conductors adjacent an LCD to be illuminated.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Cariaso whose telephone number is (703) 308-1952. The examiner can normally be reached on M-F (9:00-5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703) 305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.



Alan Cariaso
Primary Examiner
Art Unit 2875

AC
October 23, 2002